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Patentanmeldung Nr. Patent application No. Demande de brevet n°

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## PRIORITY DOCUMENT

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**Blatt 2 der Bescheinigung**  
**Sheet 2 of the certificate**  
**Page 2 de l'attestation**

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**Fan-assisted ashtray**

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## Fan-assisted Ashtray

The present invention relates to a fan-assisted ashtray, i.e. an ashtray in which a fan is used to assist in the containment of smoke in the ashtray.

5 Some bystanders find tobacco smoke and the smell of tobacco objectionable. In certain locations there may be a desire to minimize them to comply with local ordinances or regulations relating to air quality. Ashtrays with closeable lids are a partial solution to this problem.  
10 Providing ashtrays with negative pressure, e.g. through the use of a fan and associated filter, are something of an improvement because they can confine smoke in an improved manner. However, these products tend to have inefficient filters, are bulky, noisy and unsightly and inelegant in  
15 appearance.

The invention is defined in the attached independent claim, to which reference should now be made. Further preferred, advantageous features are to be found in the dependent claims.

20 In a preferred form a fan-assisted ashtray according to the invention comprises a substantially hollow body having a closable lid mounted thereon, a support member which extends across an upper end of the body, for supporting a smoker's article in use, and defining an aperture therein, a tray  
25 member located below the aperture for containing ash from a smoker's article, a filter member located below the tray member and extending across substantially an entire horizontal sectional area of the body, an electrically powered fan located below the filter member for drawing air  
30 and smoke from the smoker's article through the aperture, around the tray and through the filter member, and for

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Referring to Figure 1, there is shown in side view, generally at 10, an electrically operated fan-assisted ashtray comprising a body 12 of ABS plastics and an openable hingedly mounted lid 14 of metal. The body 12 has rubber feet 16 which  
5 are shown resting on a mounting surface 18 which might, for example, be a domestic table.

Figure 2 is a top plan view of the ashtray 10, with the lid 14 removed for illustration. The position occupied by the lid when closed is shown in broken lines. From Figure 2 it can be  
10 seen that the ashtray 10 is generally ellipsoidal in shape, having a top support member 20 defining a substantially oval central aperture 22. The top member 20 comprises a corrugated front support portion 24a for supporting a cigarette or other smoker's article (not shown), a smooth shoulder 24b  
15 surrounding the aperture 22 and a corrugated stubbing portion 24c for stubbing out a cigarette. At a front edge there is located a recess 26 for receiving a closure latch on the lid (not shown) and at a rear edge a hinge 28 for mounting the lid. The hinge itself is slidably mounted in a track 28a on  
20 an oblique surface 20a which is formed integrally with and is a continuation of the top member 20 and which interrupts the otherwise ellipsoidal shape of the body 12 at its upper rear edge.

The top member 20 may comprise portions 24a, 24b, 24c and  
25 surface 20a formed integrally from a single piece of metal. The shoulder 24b may be a ceramic insert; alternatively the entire top member 20 may be metal coated, for example in vitreous enamel. Through the aperture 22 can be seen part of a tray 30 below, for receiving ash from a cigarette or  
30 similar. The tray is described in more detail below.

Figure 3 shows the ashtray 10 from the rear, from which it may be seen that the body 12 tapers so that it is slightly wider at the top than at the bottom. The lid 14 is shown in closed position mounted on the hinge 28.

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Beneath the filter cartridge 38, and shown only schematically, is located an electric centrifugal fan 40 having plastic blades. The centrifugal fan is chosen for its high pressure drop, low velocity performance. The high pressure drop is important for efficiency and the low velocity is important to increase the contact time of the smoke in the filter elements. This design makes for efficient filtration of the entrained air and also for a minimisation of turbulence, which results in a quieter operation of the fan. The fan 40 vents through an aperture 42 in the bottom of the body 12 and is powered by rechargeable battery cells 44 though, as explained below, it may optionally take its power from mains electricity. Increased efficiency of the fan also permits the fan to last longer without re-charging its batteries.

Figure 7 shows the ashtray 10 with its lid 14 in open position. To move the lid from the closed position (as depicted in Figure 1) to the open position two different actions are required. The first action is the pivoting of the lid 14 on its hinge 28. The second action is the sliding of the hinge 28 (and with it the lid 14) on its track 28a on the oblique surface 20a of the top member 20. This leaves the lid in the position shown in Figure 7 allowing access to the top member 20 and aperture 22.

Figure 8 shows the ashtray 10 in bottom plan view. The feet 16 can be seen distributed around the periphery of the elliptical floor of the body 12, and the vent aperture 42 can be seen towards the rear of the ashtray. Towards the front of the ashtray the LED cluster 34 is positioned with the individual LEDs pointing away from the body 12.

In use, a smoker activates the ashtray 10 by opening the lid 14. Firstly the lid is pivoted about hinge 28 and then the hinge and lid are slid over track 28a leaving the top member 20 and aperture 22 exposed. The fan 40 is activated automatically on opening of the lid as a result of switching

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smoke or odours trapped between the top member 20 and filter 38, for example-from ash located in the tray 30, remain in the body by virtue of the lid making a sealing closure of the ashtray.

5 The lid 14, top member 20 and tray 30 may be removed together for their cleaning and for the disposal of any butts or ash without touching the dirty tray. Their release is preferably effected by release of a bayonet clip (not shown) by which they are retained in the body 12 during normal use. This is  
10 also a safety feature, ensuring that butts or ash do not fall out of the tray if the ashtray is accidentally knocked over. Preferably the lid, tray and top member are of the same material, which may be metal and is preferably chrome-plated or coated with a zinc/aluminium alloy.

15 Whichever material is chosen for the lid, top member and tray, the important criteria are that the material is heat-safe, washable and hard wearing. An option for the material of the shoulder portion 24b is vitreous enamel, since this may be cleaned easily.

20 Preferably the ABS plastic body is susceptible of surface treatments for decoration.

The LEDs may be used to indicate on/off status of the fan, the need to replace the filter cartridge or the need to recharge the batteries 44 (if used). In the case of the last two  
25 mentioned operations a timer circuit (not shown) may be used to estimate the need for replacement of the filter cartridge or recharge of the batteries, based upon the number of hours of use. The batteries 44 may be recharged from the mains whilst the fan is operational.

30 The top member 20 is arranged such that the corrugated support portion 24a slopes downwardly and inwardly from the edge of the body 12, towards the aperture 22, as do the shoulder

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the tray and into the gap beneath allows the hot smoke to cool somewhat before contact with the filter so as not to damage the filtration media.

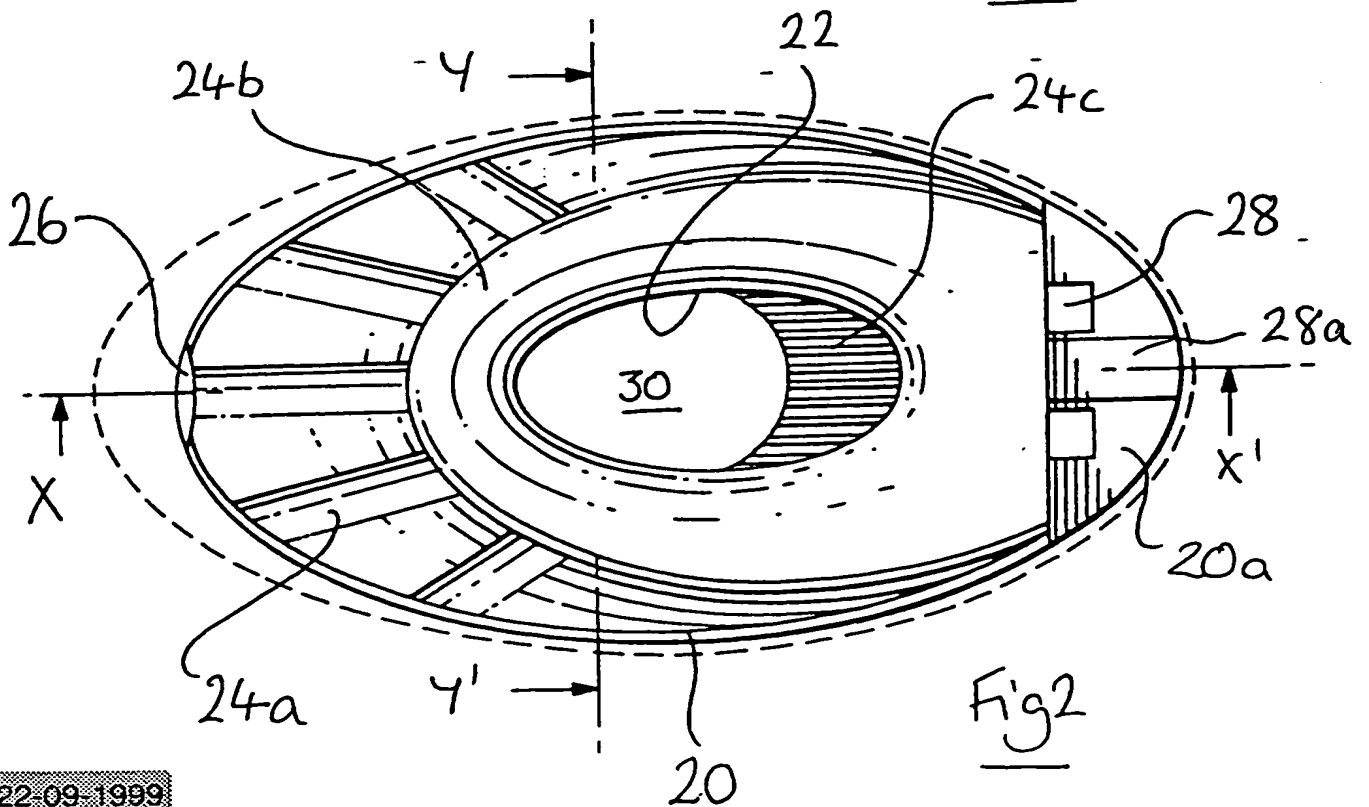
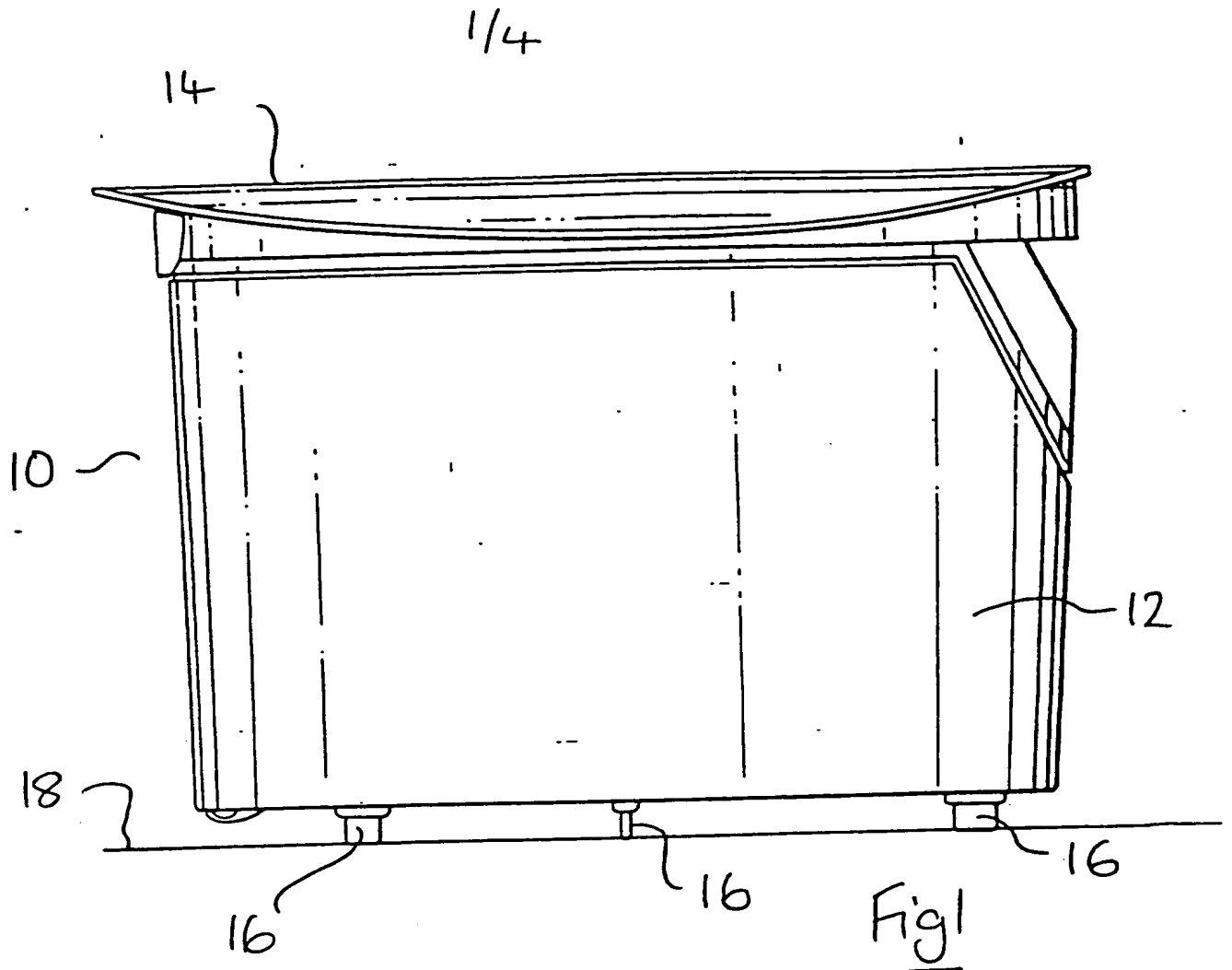
5 The mounting arrangement of the lid on the hinge, and the hinge on the track conveniently permits a hinged opening on a non-rectangular body without the need for a bulky and unsightly external hinge mounting which is often the case with peripherally mounted hinges on circular or elliptical vessels. The lid arrangement also conveniently permits the switching on  
10 and switching off of the fan, and seals the ashtray, physically confining all signs of smoking to the interior of the ashtray.

A modified version (not shown) designed specifically for use with cigars, has a slightly different top member 20. The  
15 corrugations of the support surface 24a are replaced with a single trough or channel, deeper than the previous corrugations to allow for the greater diameter of cigars, and angled downwardly towards the aperture which is placed somewhat further toward the hinge-end of the body. This  
20 provides room so that cigars - considerably longer than cigarettes - do not fall off the ashtray. Also the stubbing surface 24c is removed so as not to present an obstacle to the burning embers of the cigar, which must remain intact and as large as possible during the smoking of the cigar.

C L A I M S :

1. A fan-assisted ashtray comprising a substantially hollow body having a closable lid mounted thereon, a support member extending across an upper end of the body, for supporting a smoker's article in use, and defining an aperture therein, a  
5 tray member located below the aperture for containing ash from a smoker's article, a filter member located below the tray member and extending across substantially an entire horizontal sectional area of the body, and an electrically powered fan  
10 located below the filter member for drawing air and smoke from the smoker's article through the aperture, around the tray and through the filter member, and for exhausting filtered air to the exterior of the body through a vent.
2. An ashtray according to claim 1 wherein the ashtray is  
15 generally ellipsoidal in shape.
3. An ashtray according to claim 1 or claim 2 wherein the lid is mounted on a hinge member, the hinge member being slidably mounted on a track at an upper edge region of the body for both pivotal and sliding movement of the lid, with  
20 respect to the body, between open and closed positions.
4. An ashtray according to claim 3 wherein the track is defined by an oblique surface at the upper edge region of the body.
5. An ashtray according to any of claims 1 to 4 wherein  
25 activation and de-activation of the electric fan is arranged to be effected, respectively by opening and closing of the lid.
6. An ashtray according to any of claims 1 to 5 wherein the lid, support member and tray member are releasably coupled





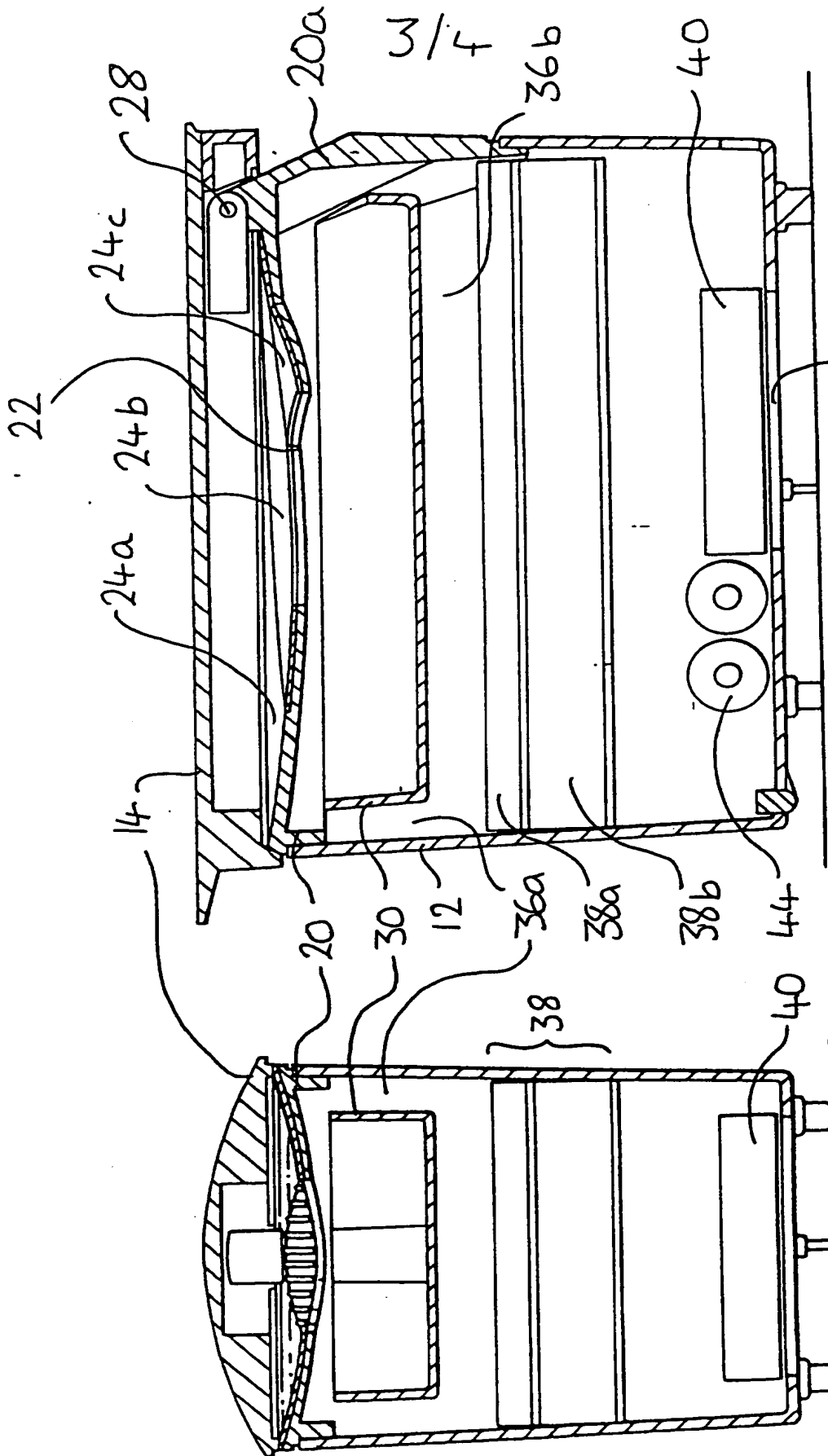


Fig 5

Fig 6

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A B S T R A C T

(Fig. 5 )

Fan-assisted Ashtray

5 A generally ellipsoidal fan-assisted ashtray  
(10) comprises a substantially hollow body (12), having a lid  
(14) for closing an open top thereof, a tray member (30) for  
containing ash from a smoker's article, a filter member (38)  
located below the tray member and an electric fan (40) located  
below the filter member for drawing air and smoke into the  
10 filter member and for exhausting air to the exterior of the  
body through a vent (42). The filter member extends across  
substantially an entire horizontal sectional area of the body.

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